



Summary

- Russian metals sector is strongly dependent on the international market trends, which were negative in 2015 as a result of recession in China, the largest player in the global metals market.
- The ferrous metals sector remains negatively impacted by the decreased capacity utilization level, growing China's export power, rising protectionism in external markets and weak domestic demand.
- Prices for non-ferrous metals in 2015 followed the general commodity market pricing trends. Nevertheless, investments in the Russian non-ferrous metal industry increased 29.3 percent in 2015.
- The precious metal market was affected by both the adverse macroeconomic situation associated with the weakening of the Chinese economy and the market expectations over the U.S. federal rate rise.
- Gold market surplus is observed for the 3rd consecutive year, with an additional effect of pulling down the prices. The industry is supported by the growing demand for gold from the public sector. Gold production in Russia has marginally increased.
- The price of silver in the world market has been steadily going down for the fifth year running, despite the silver market deficit, observed for the 3rd consecutive year, and the record-breaking demand from the jewelry sector. Meanwhile in Russia, silver production increased 16.6 percent, and the country is now number four (compared with number six in 2014) around the world in silver production.
- One of the most important developments in the platinum group metals (PGM) market in 2015 was the resumption of South African supplies.
- Stock market sentiment towards the Metals & Mining sector was worse than towards the broad market and other sectors, with the Metals & Mining index capitalization going down.
- In 2015, Russian metal producers were mostly focused on improving the quality of their internal business processes and maximising organic growth opportunities.
- Despite the negative market conditions, Russia's major metal producers showed a relatively robust financial performance, supported by the ruble depreciation. The ruble allowed the lower dollar-denominated prices and sales to be offset, and the production costs to be reduced.
- In the challenging macroeconomic situation, the winners were the companies that managed to maintain high capacity utilization levels through a variety of means including expanded presence in their key markets, greater export sales and adaptation of higher value added product strategies. A low income base and moderate debt became competitive advantages.



I. Some Figures Describing the Ferrous and Non-Ferrous Metals Industry

Ferrous and non-ferrous metals production is among Russia's areas of specialization in international trade. Russia is the world's second-largest producer of aluminum, nickel and PGM, and the fifth largest steel producer.

Ferrous metals

The production of crude steel declined 2.9 percent in 2015 from a year earlier to 1,620.9 million mt. China's crude steel output was 803.8 million metric tons (mt)s, down 2.3 percent, which however accounted for nearly one-half (49.6 percent) of the world's total production.

The global demand decreased 3.0 percent to 1,500.1 million mt of finished steel driven by China's 3.3 percent decrease in steel consumption (to 977.5 million mt, or 44.8 percent of total world's consumption).

Russia's production of crude steel fell 1.8 percent to 69.4 million mt last year, according to the Ministry of Industry and Trade. The World Steel Association estimates Russia's crude steel production at 70.9 million mt 94.4 percent of the world's total steel production and puts Russia fifth in its ranking of the world's largest steel producers after China (49.6 percent), Japan (6.5 percent), India (5.5 percent), and the U.S.A. (4.9 percent). Although ranked fifth by production volumes, Russia shows a downward trend that is somewhat less pronounced than for the market in general (minus 1.8 vs minus 2.9 percent). The production of ferrous cold- and hot-rolled products dropped 1.5 percent to 60.3 million mt, including 27.7 million mt of flat-rolled products, 18.6 million mt of bars and sections, and 11.4 million mt of steel tubes. The market is fairly well consolidated, with top three producers accounting for one-half of the total production of ferrous cold- and hot-rolled products (see figure below).

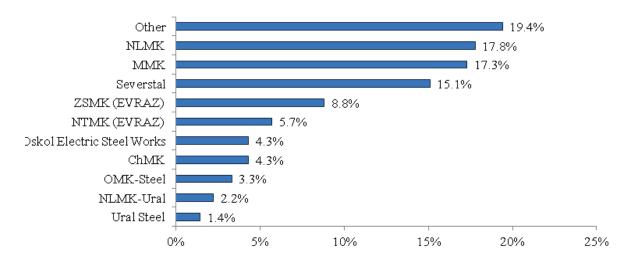


Fig. Russia's largest steel producers in 2015²

¹ World Steel Association, crude steel

² MMK, cited with reference to Metal Expert Information Agency.



Russian steel apparent consumption had dropped faster than the world average, by 8.4 percent (to 39.4 million mt) vs. 3.0 percent (to 1,500.1 million mt) respectively due to the adverse economic situation, and lower investment from the state and businesses³.

Russia exports a considerable amount of steel. In 2015, Russia ranked third by net exports of steel (25.3 million mt)⁴ after China (98.4 million mt) and Japan (34.9 million mt.

Russian pig iron production increased 4.4 percent (to 53.7 million mt)⁵, contrary to the world's production trend (a 2.7-percent decrease to 1155.9 million mt).

Investments in the steel industry declined 16.7 percent to RUB 110 bn, according to Russia's Ministry of Industry and Trade.

Market participants expect that in 2016, Russia's metal sector will remain negatively impacted by the decreased capacity utilization rate for the sector globally, growing China's export power, rising protectionism in external markets and weak domestic demand.

Non-Ferrous Metals

Global non-ferrous metal market conditions weakened in 2015 as prices went down (see Table 1). Nevertheless, investments in the Russian non-ferrous metal sector increased last year by 29.3 percent to RUB 203 bn, according to Russia's Ministry of Industry and Trade.

Table 1. The London Metal Exchange (LME) non-ferrous metals prices, 2015

		monthly average pr	rices, US\$ per tonne	
	Jan 2015	Dec 2015	May 2016 (reference info)	Change, Dec 2015./ Jan 2015 .
Aluminium,	1808.4	1494.3	1556.3	-17.4%
Copper	5815.8	4629.0	4708.4	-20.4%
Lead	1829.2	1701.3	1714.4	-7.0%
Nickel	14771.0	8692.1	8689.3	-41.2%
Tin	19463.1	14702.4	16745.8	-24.5%
Zinc	2110.6	1522.1	1871.2	-27.9%
Cobalt	31112.9	24235.2	23589.3	-22.1%
Molibden	20619.1	11523.8	14932.5	-44.1%

Source: LME

³ Mechel

⁴ Exports minus imports

⁵ Russia's Ministry of Industry and Trade (MIT); MIT 2015 Results, http://government.ru/dep_news/22613/



Table.	Global non-	ferrous met	als output ar	d consumpti	on rates in 2015	, '000 metric tons
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	Output	Concumption	Chan	surplus (+) /		
	Output	Consumption	output	consumption	deficit (-)	
Aluminium,	57,354	57,710	7.7%	7.2%	-356	
Copper	23,080	22,931	0.7%	0.5%	146	
Lead	10,133	9,976	-7.4%	-9.2%	157	
Zinc	4,423	4,342	3.1%	1.0%	81	
Nickel	1,921	1,934	-0.7%	14.3%	-13	
Tin	373	364	-6.4%	-3.9%	-8.7	

Source: WBMS

Russia is the second-largest producer of primary *aluminium* (6.1 percent of total global production) *after* China (55.8 percent)⁶. After the merger of RUSAL, SUAL, and the Switzerland-based Glencore in 2007, UK RUSAL, the merged company, is the world's largest aluminium producer⁷.

According to UC RUSAL's operating data, the company's Russia-based asserts produced around 3,531,000 mt of primary aluminium in 2015⁸, up 1.2 percent on 2014, although the growth rate was lower than the world's average (7.7 percent). However, Russia's capacity utilization rate was comparable to the world's average (83.7 vs. 83.4 percent)⁹. With up to 20 percent of the primary aluminium output (700,000 mt) consumed locally¹⁰, Russia's aluminium industry is dependent on the international market trends.

Global aluminium market trends were fundamentally favourable in 2015, with demand rising 7.2 percent, outpacing supply by 0.6 percent, or 365,000 mt. The demand from China,m the largest aluminium consumer, grew higher than the world's average, by 14.2 percent.¹¹

At the same time, aluminium prices had weakened. LME's official monthly average price for the metal dropped 17.4 percent to US\$ 1494.3 per mt (US\$ 1556.3 in May 2016). Such a price put many producers with a total production capacity of over 10.8 million mt (41 percent of the world's output without China) into the loss-making position¹², and there is a risk of more closures of loss-making capacities in 2016. In this context, Russian aluminium industry looks competitive enough, as RUSAL managed to consistently decrease its costs, to US\$ 1410/mt in 4Q 2015 (and US\$ 13426/ mt at the end of 1Q 2016) from to US\$ 1499/mt in 1Q 2015, ensuring a good safety margin. LME's policy encouraging inventory reductions

⁶ U.S. Geological Survey, Mineral Commodity Summaries, http://minerals.usgs.gov/minerals/pubs/mcs/2016/mcs2016.pdf

⁷ The company's latest data available data (2014), http://aluminiumleader.ru/economics/world_market/

⁸ 96.9 percent of primary aluminium production on average came from the Russia-based assets in 2-4Q 2015 (according to publicly disclosed information). Russia's primary aluminium production estimates are based on Российские активы обеспечивают в среднем (по имеющимся в открытом доступе данным) за 2-4 кв. 2015 г. The U.S. Geological Survey's estimate of Russia's primary aluminium output of 3,500,000 mt is very close

⁹ According to the U.S. Geological Survey and WBMS

¹⁰ Including the CIS member states

¹¹ WBMS, http://www.worldbureau.com/readnews.asp?id=30

¹² By RUSAL's estimate as of Oct 2015, http://www.rusal.ru/upload/iblock/b55/T-RUS_RUSAL_3Q15_presentation_v17_RUS%20_IR%20corrected%20v2_.pdf (crp. 23)



had a certain negative impact on the metal prices in early 2015. The 2.9 percent increase in China's domestic aluminium smelting capacity (to 36 million mt), despite the fact that only 25 percent of Chinese smelters are profitable (China's top aluminium companies had to negotiate production cutbacks¹³) also contributed to the downward price trend. Global aluminum market deficit is expected to grow in 2016. Alminium production continues to be driven by demand from the transportation, energy and construction sectors.

Global *copper* prices were falling in line with the general commodity market trends. The global copper market saw a surplus that varied from 146,000 to 363,000 mt according to different estimates (see Table 2). Chile's copper output (26 percent of the world's total copper production) of 5,764,000 mt remained practically unchanged. The demand from China (43-50 percent of the world's total demand) increased 1.3-4.0 percent by different estimates, weaker than was expected by the market. As a result, global copper prices decreased 20 percent to US\$ 4629 per mt in 2015¹⁴. The fact that a number of U.S. and European investment banks had exited the commodity markets in 2015 due to regulatory restrictions on restrictions on physical commodity activities also contributed to the downward pricing trend. Price recovery may be driven by the low exchange stocks and the metal deficit risk associated with production cutbacks or growing China's demand.

Table 2. Copper price comparison, 2015.

	GFMS, Thomson Reuters				WBMS			USGS		
	2015	2014	2015/2014	2015	2014	2015/2014	2015	2014	2015/2014	
Mine production, total	19,022	18,370	3.5%	19,280	18,485	4.3%	18,700	18,500	1.1%	
Chile	-	-	-	-	-	-	5,700	5,750	-0.9%	
Russia	-	-	-	-	-	-	740	742	-0.3%	
Smelter production, total	22,212	21,708	2.3%	23,080	22,920	0.7%	-	-	-	
Chile	5,764	5,750	0.2%	-	-	-	-	-	-	
Russia	741	740	0.1%	-	-	-	-	-	-	
Consumption, total	21,849	21,450	1.9%	22,931	22,811	0.5%	-	-	-	
China	9,942	9,560	4.0%	11,451	11,303	1.3%	-	-	-	
Russia	460	630	-27.0%	-	-	-	-	-	-	
Surlus (+) / deficit (-)	363	257	41.2%	146	116	-	-	-	-	

By GFMS estimates, Russian copper mine production in 2015 increased marginally – by 0.1 percent – to 741,000 mt allowing Russia to rank seventh in the world. According to Russia's Ministry of Industry and Trade, Russian production of refined crude copper reduced by 2.1 percent last year. The largest copper producers in Russia are Norilsk Nickel (356,000 mt, or 48 percent of total smelter production in the country), UGMK and RMK.

¹³ Business media, https://www.vedomosti.ru/business/articles/2016/06/15/645331-kitai-proizvodstvo-alyuminiya

¹⁴ LME's December 2015 monthly average price

¹⁵ GFMS Copper Survey 2016, Thomson Reuters

¹⁶ Russia's Ministry of Industry and Trade (MIT); MIT Results as of Apr 20, 2016, http://government.ru/dep_news/22613/



Lead is the third most consumed non-ferrous metal after aluminum and copper. A high proportion of lead (58.6 percent¹⁷), is produced from secondary sources, i.e. scrap metal, with lead-acid batteries being the most important source¹⁸. In 2015, global consumption of lead metal decreased faster than production (by 9.2 percent vs. 7.4 percent respectively) due mostly to the 19.1-percent decrease (to 3,816,000 mt) in the demand from China, the world's top consumer (38 percent). As a result, the lead market that had been in deficit since 2014 had moved to a surplus. Meanwhile lead prices proved to be relatively stable (minus 7 percent), unlike other metals. Russia's lead mine production in 2015 was at 90,000 mt¹⁹, or 1.9 percent of total world's production. Russia's lead production is exported. According to Russia's Ministry of Industry and Trade, Russian production of hard (unrefined) lead increased 113 percent last year. The domestic demand is met by the recycling of scrap by companies, such as Electrozinc OJSC (member of UGMK Group), Ryaztsvetmet ZAOP, Metcom Group ZAO and smaller enterprises. There are plans to construct a country's largest metal lead production capacity (up to 100,000 mt/y) by a group of companies (including Novoangarsk Mining & Processing LLC and Karat-TsM ZAO)²⁰. to move away from the export of lead concentrate. Constraints include the unfavourable business climate, tightening environmental standards, and the development of «Lead substitute» products for use in different lead applications.

2015 say small increases in the demand (+1 percent) and supply (+3.1 perent) in the global zinc market. According to Russia's Ministry of Industry and Trade, Russian production of unrefined zinc grew 2.3 percent last year, with more than 60 percent of the total output coming from Chelyabinsk Zinc Smelter (ChTsdZ). According to the company, it produced 171,000 mt of zinc, a 1.4 percent increase YoY, and 36.8,000 mt of zinc concentrate, up 1.7 percent on 2014²¹. According to previous period estimates, the apparent domestic zinc consumption at 228.9,000 mt is 3 percent greater than production²². The shortfall in supply is met with imports.

Global *nickel* market price trends in 2015 were weaker than the consensus forecast (US\$ 17850/mt), dropping 41 percent to US\$ 8692.1/mt²³. The market was strongly impacted by macroeconomic, fundamental and speculative factors, including China's weakened industrial demand, the U.S. dollar strengthening relative to commodity currencies, lower investments in physical commodities and index funds, speculation at the LME, minimum price reduction due to lower nickel production costs and poor production elasticity

¹⁷ 2015 data, ILZSG, http://www.ilzsg.org/generic/pages/file.aspx?file_id=1825

¹⁸ D. Smale (Secretary-General ILZSG, INSG, ICSG), View of the Global Development of the World Non-Ferrous Metals and Commodities // 8th Mining Task Force Meeting, Beijing, China, 24-25 June, http://mddb.apec.org/Documents/2014/MTF/MTF/14_mtf8_011.pdf (crp. 38)

¹⁹ USGS

²⁰ Annex 2 to the 2014 - 2020 and 2030 Non-Ferrous Metal Sector Development Strategy

²¹ ChTsZ, http://www.zinc.ru/about/

²² Russia's MIT estimate for 2013

²³ LME's December 2015 monthly average price



with respect to deteriorating market conditions (due to the subsidizing, high cost of mine conservation, low debt refinancing rates, price recovery expectations, and bank 'loyality' to bankruptcy procedures). Nickel production may be driven by a lower global production, lower exchange stocks (peaking at 500,000 mt) positive China's economic trends, smaller production of low-quality nickel, growing stainless steel production (as the latte accounts for 67 percent of total nickel applications²⁴), and increase in the Chinese nickel imports. Norilsk Nickel, the Russian and the world's largest producer, has reduced nickel production from Russian raw materials by 1.3 percent to 2320,000 mt. In general, Russian production of unrefined nickel decreased 3.3 percent last year, according to Russia's Ministry of Industry and Trade.

Russia needs to import *tin*, the share of imported metal reaching percent of apparent consumption, or 1.9,000²⁵. Russia's largest tin producers are companies controlled by Seligdar Group, e.g., Olovyannaya Rudnaya Kompaniya OJSC (Rusolovo's subsidiary) and Pravourmiyskoe LLC. The Group's production of tin concentrate reached 575.1 mt in 2015. Production expansion is expected after the construction of a mining and processing plant in Khabarovsk Kraj. Although tin mine production in Khabarovsk Kraj is subject to a zero Mineral Extraction Tax rate in 2013-2017 (under the Tax Code Article 342, item 17), current investments in the project are very low.

One area attracting attention is the *titan* market in 2015. According to VSMPO-AVISMA, Russia's leading manufacturer of titan semi-fabricated products, despite regional economic instabilities, the global demand for titan was robust throughout 2015 due to the fast-growing aviation sector²⁶. Russia's domestic market saw a weaker demand (-11.6 percent) due to reducing inventories in the ship building and aviation sectors. As a result, titan exports grew 5.9 percent to 16.5,000 mt, although total shipments of the metal decreased 2.3 percent to 28.7,000 mt.

II. Precious Metals

Russia has a strong position in the global precious metals market ranking third in gold production and fourth in silver production.

Gold

Gold production has been growing globally for the 7th consecutive year, but the growth rate has decreased to 0.9 percent in 2015 from 2.9 percent in 2014. Total supply of gold from production, scrap, hedging and other sources has dropped 2.0 percent to 4,306 mt (see Table 3), while the recycling (scrap) has increased - for the first time since 2009 –

²⁴ Norilsk Nickel's data, http://www.nornik.ru/assets/files/2016/GODOVOJ-OTChET_2015.pdf (c. 24)

²⁵ Russia's MIT 2013 data

²⁶ VSMPO-AVISMA, http://www.vsmpo.ru/doc_e/otchet/2015/god-2015.pdf



by 1.3 percent. The demand for gold has been falling for the second year running (-17.3 percent in 2014, -2.0 percent in 2015) due to weaker demand from the jewelry sector (-3.4 percent), accounting for more than one-half of total gold applications, and from the industry (-9.5 percent). The industry is supported by the growing demand for gold from the public sector (483 mt, up 3.6 percent YoY in 2015, peaking for the second time in the decade).

Gold market surplus is observed for the 3rd consecutive year and has increased to 354 mt in 2015 from 198 mt in 2013 (gold ETFs included). As a result, annual average prices for gold decreased 8.4 percent to US\$ 1160.06/oz in 2015, according to LBMA. The downward price trend should continue if the market surplus persists.

Table 3: Gold supply and demand in 2015 (tonnes).

	2015	2014	Change 2015/2014, % increase
Gold supply			
Mine production	3,158	3,131	0.9
Recycling	1,173	1,158	1.3
Producer net hedging supply	-24	104	-
Total supply	4,306	4,394	-2.0
Demand for gold			
Jewellery	2,166	2,242	-3.4
Technology	361	399	-9.5
Public sector (net position)	483	466	3.6
Bar & coin investment demand	1,115	1,101	1.3
Total physical demand	4,124	4,207	-2.0
Surplus (+)/ deficit (-)	182	187	-2.7
ETP Inventory Build	-124	-157	-21.0
Exchange Inventory Build	-48	1	-
Balance	354	344	2.9
LBMA gold price, US\$/oz	1,160.1	1,266.4	-8.4

Source: Thomson Reuters

Russia's 2015 gold mined production was relatively unchanged, according to Russia's Ministry of Finance; it rose by 0.5 percent to 289.47 mt, of which mined gold accounted for 81 percent, by-product gold for 5 percent, and secondary gold for 13 percent²⁷. Gold was mostly mined in the Siberian Federal District (40 percent, including 21 percent in Krasnoyarsk Kraj) and the Far Eastern Federal District (55 percent, including 12 percent in Amur Oblast).

²⁷ Russia's Ministry of Finance, http://minfin.ru/ru/press-center/?id_4=34373



Table 4: Russia's top gold producers in 2015.

Rank	Company	Gold prod	uction, mt	Change 2015/2014, %	
Kalik	Company	2015 г.	2014 г.	increase	
1	Polyus Zoloto JSC	54,8	52,7	4%	
2	Polymetall OJSC	26,8	29,4	-9%	
3	Kinross Gold Corp (Chukotka Mining & Prospecting Co)	23,5	21,5	9%	
4	Petropavlovsk GK	15	19,2	-22%	
5	Yuzhuralzoloto GK OJSC	13,7	8,5	61%	
6	Nordgold (Severstal)	10,63	10,58	0,5%	
TO	OTAL:	TOTAL:	141,9	1,8%	

Silver

World's 2015 silver production fell by 1.2 percent to 1040.6 million oz, while global demand for silver rose by 3.4 percent (to 1170.5 million oz), driven mostly by higher demand for silver bullion and coins. As a result, shortage of silver was observed for the 3rd consecutive year, and increased by 65 percent in 2015 to 129.8 million oz (see Table 5). However the 2015 price went down for the fifth year running, this time by 17.8 percent to US\$ 15.7/oz, on expectations of rising interest rates in the U.S.A. and China's economic weakening. The market was underpinned by the record-breaking. demand from the jewelry sector, which had risen for the 4th year running, from 185.4 million oz in 2012 to 226.5 million oz in 2015.

Table 3: Silver supply and demand in 2015, million oz

	2015 г.	2014 г.	Изменение 2015/2014, % прирост
Supply			
Mine production	886,7	868,3	2,1%
Scrap	146,1	168,3	-13,2%
Net Hedging Supply	7,8	16,8	-53,6%
Total supply	1040,6	1053,3	-1,2%
Demand			
Jewellery	226,5	224	1,1%
Coins and bars	292,3	236,1	23,8%
Silverware	62,9	60,7	3,6%
Technology	588,7	611,2	-3,7%
Total demand	1170,5	1131,9	3,4%
Surplus (+)/ deficit (-)	-129,8	-78,6	65,1%
ETP Inventory Build	-17,7	1,5	-
Exchange Inventory Build	0,3	-8,8	-
Net balance	-112,5	-71,3	57,8%
Silver Price, US\$ per oz.	15,68	19,08	-17,8%

Sources: Thomson Reuters / The Silver Institute



In 2015, Russia strengthened its position among the world silver producing countries and moved to the fourth (from the sixth in 2014) position with 50.5 million oz after Mexico, Peru and China. According to Russia's Ministry of Finance; Russia's 2015 silver production rose by 16.6 percent to 1246.55 mt, of which mined silver accounted for 59 percent, byproduct silver for 25 percent, and secondary silver for 17 percent. Silver was mostly mined in the Far Eastern Federal District (96.1 percent, including 65 percent, or 475.3mt in Magadan Oblast). Russia's leading silver company is Polymetall (32.1 million oz²⁸, or 63.6 percent of the country's total silver production).

Platinum Group Metals

The 2015 platinum group metals (PGM) market followed the general weakening trend. One of the most important developments was the resumption of South African supplies, suspended in 2014 due to labour conflicts. As a result, the annual average platinum price dropped by 24 percent, and prices for palladium and rhodium decreased by 14 and 19 percent respectively, to 1053 US\$/oz (see Table 6).

Table 6: Some figures describing the PGN market

	Platinum			Palladium			Rhodium		
	2015	2014	2015/ 2014	2015	2014	2015/ 2014	2015	2014	2015/ 2014
Production ('000 oz), of which:.	6158	4856	26,8%	6713	6136	9,4%	775	598	29,6%
South Africa	4522	3220	40,4%	2653	2008	32,1%	624	449	39,0%
Russia	721	687	4,9%	2575	2582	-0,3%	88	87	1,1%
Price, US\$ per oz.	1052,9	1385,7	-24,0%	691,6	803,2	-13,9%	952	1173	-18,8%

Sources: GFMS, Thomson Reuters

In 2016, the PGM market may be driven by industrial demand. The U.S. automobile market is strictly regulated in terms of environmental standards, and large amounts of PMG are used for the production of catalytic converters. PMG shortages may occur due to a lower supply (the South African uncertainties and Norilsk Nickel "reconfiguration").

III. Exchange and commodity markets

Shares of Russian metal sector companies are traded on the Moscow Exchange and used to calculate the ruble-denominated MICEX M&M Metals & Mining Sector Index and the forex-denominated RTSmm.

In 2015, stock market sentiment towards the Metals & Mining sector was worse than towards the broad market and other sectors, with the Metals & Mining index capitalization going down by 5.2 percent to RUB 426.4 bn. This resulted from the mining companies' negative performance trends and the index restructuring in the course of the year.

²⁸ Mine production based on the Dukat, Omolon, Vorontsovskoe deposits and Okhotsk mines



At the same time, most of the metal sector companies included in the index managed to increase their capitalization (see the figure below).

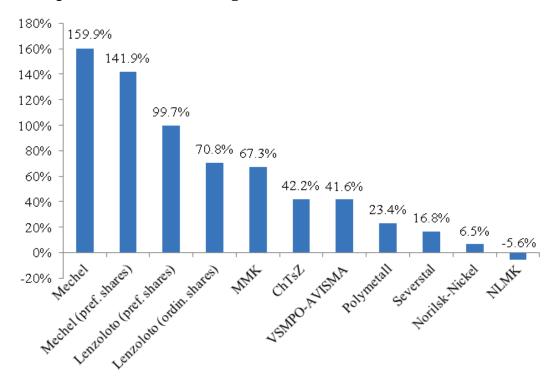


Fig. Changes in the mining sector capitalization in 2015.

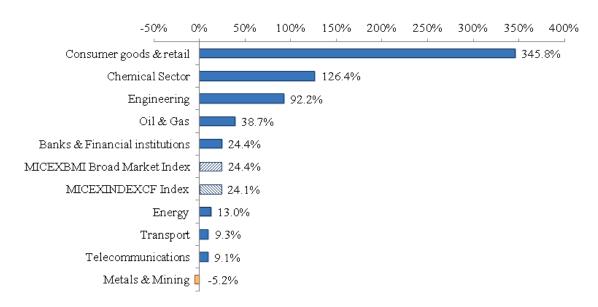


Fig. Changes in the MICEX M&M sectoral index capitalization compared with the broad market and other sectors (the Moscow Exchange).



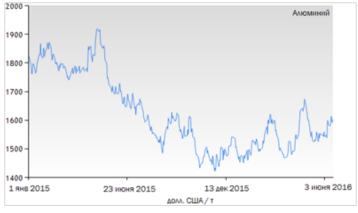
Commodity market price trends in 2015 and early 2016 (LME, LBME)

US\$/ mt

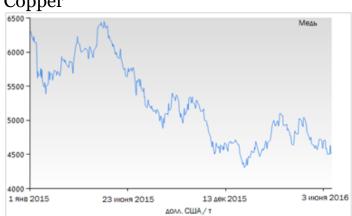
Steel







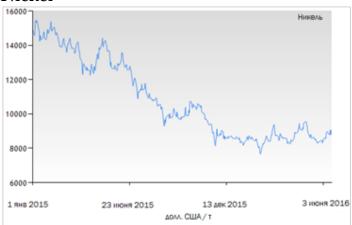
Copper



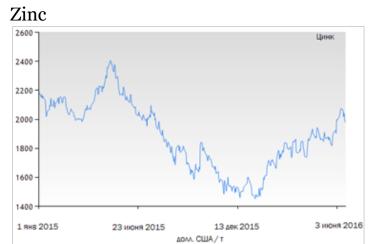
Lead



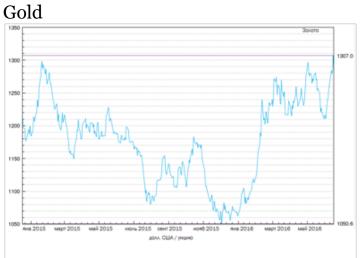
Nickel



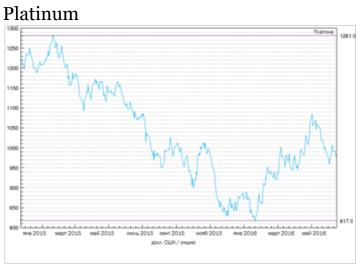


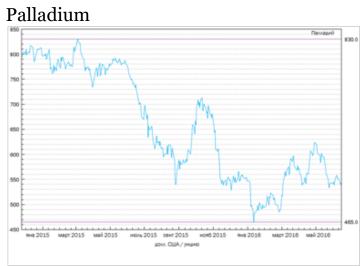
















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